

REMARKS

Reconsideration and allowance of the present application are requested in light of the amendments above and the remarks that follow. By this Amendment, allowed claims 8 and 19 have been rewritten in independent form. Claims 1-20 remain pending. Independent claims 1, 11 and 15, like claims 8 and 19, are allowable.

Applicants note with appreciation the indication in the Office Action that claims 8-9 and 19-20 would be allowable if rewritten in independent form. Accordingly, by the foregoing Amendment, amendments have been proposed to place these claims in allowable form and to expedite allowance of the present application.

In numbered paragraph 1 on page 2 of the Office Action, claims 1-7, 10, 11-14 and 15-18 are rejected as being unpatentable over Wakui et al. (U.S. Patent Application Publication No. 2002/0171309) in view of Asano et al. (U.S. Patent No. 6,396,374). In numbered paragraph 2 on page 5 of the Office Action, claims 1-7, 10, 11-14 and 15-18 are rejected as being unpatentable over Wakui et al. in view of Regis et al. (FR 2636480) and Asano et al. Applicants respectfully traverse these rejections, as none of the documents relied upon by the Examiner, teach, suggest or provide any motivation whatsoever for Applicants' invention as set forth in independent claims 1, 11 and 15.

For example, claim 1 recites a rotor for a permanent magnet electrical machine comprising, among other features, slots (e.g., slots 24 of Fig. 1) in the rotor (e.g., rotor 4). Claim 1 recites that these slots are on the route of the magnetic flux **extending** from **close** to the first and second edges of a magnetic pole (e.g., edges of the magnetic pole close to outward ends of the permanent magnets 10 used to

form the exemplary magnetic pole shown in Fig. 1). The slots extend from close to these first and second edges, essentially towards the center of each of the plurality of magnetic poles (e.g., the area of concentrated flux lines shown in the center of the Fig. 1 magnetic pole).

Independent claims 11 and 15 recite a similar feature, and like claim 1, are allowable.

Applicant's Figure 1 illustrates a cross-section of a single pole 9 of a rotor 4. Rotor 4 includes rotor sheets having slots 8 and permanent magnet elements 10 located in slots 8. The permanent magnet elements 10 are arranged so that the magnets on both sides of a pole 9 are essentially at the edges of the magnetic pole 9 in the vicinity of the outer circumference 3 of rotor 4.

The Examiner apparently asserts that *Wakui '309's* magnetic flux short circuit preventative holes 3 correspond to the "slots," as recited in Applicant's claim 1. However, claim 1 recites "slots in the rotor on the route of the magnetic flux extending from close to the first and second edges...of each of the plurality of magnetic poles." *Wakui '309* discloses that magnetic flux short circuit preventative holes 3 are included and extend from the ends of the insertion holes for magnets 2. (*Wakui '309*, p. 3, ¶¶ 0052-0053.) Figures 1, 2 and 4-9 of *Wakui '309* all disclose holes 3 being connected to their respective magnets 2. Thus, *Wakui '309* does not teach or suggest "slots" close to edges of a magnetic pole, as recited in Applicant's claim 1, but rather discloses holes which are extensions of the permanent magnet insertion holes. As their name suggests, "magnetic flux short circuit preventative holes" disclosed by *Wakui '309*, serve a different purpose than Applicant's claimed "slots," which provide an air gap flux having a sinusoidal form.

Asano '374 discloses a method of magnetizing a permanent magnet material used in a rotor structure. (*Asano '374*, col. 1:11-16.) The Examiner implicitly acknowledges that *Asano '374* fails to disclose Applicants' claim 1 slots "close to" first and second edges of a magnetic pole as presently claimed.

Accordingly, *Wakui '309* and *Asano '374*, when taken individually or in any combination, do not teach or suggest "slots" as recited in Applicants' claims 1, 11 and 15. Claims 1, 11 and 15 are therefore patentable. Claims 2-7, 10, 12-14 and 16-18 are also patentable at least due to their dependence from claims 1, 11 and 15.

Applicants' claims are also allowable over the *Wakui*, *Regis* and *Asano* documents cited in numbered paragraph 2 of the Office Action, as the *Regis* document fails to overcome the deficiencies of the *Wakui* and *Asano* documents described above. The Examiner refers to the *Regis* document's recesses 11, 12 in Fig. 1. On page 7 of the Office Action (page 7, lines 11-13), the Examiner characterizes these recesses as corresponding to Applicants' slots, and states: "... wherein the slots (11, 12) are extending from close to the first and second edges of the pole essentially towards the center of each of the plurality of magnetic poles ...".

To the contrary, the *Regis* document, considered alone or in combination with the *Wakui* and *Asano* documents, would not have taught or suggested the presently claimed invention, because the recesses (11, 12) of the *Regis* document are not "slots" (see slots 24 of Applicants' Fig. 1) shaped and located to "extend" from "close" to first and second edges of a magnetic pole essentially towards a center of the magnetic pole. Rather, Applicants have advised the undersigned that the recesses (11, 12) of *Regis* are shaped and situated to maximize air-gap magnetic flux in a central area of a magnetic pole and to prevent leakage flux. As such, the

recesses 11, 12 of the Regis document would not have been modified to satisfy the features recited in Applicants' claims 1, 11 and 15. Applicants have advised the undersigned that the outer circumference of the rotor or the rotor pole of the Regis document is formed non-round to make the air-gap flux sinusoidal, such that Regis would have taught away from the presently claimed invention.

Accordingly, there would have been no motivation or suggestion to have formed the recesses of the Regis document such that they would have been shaped to "extend" from a location "close to" first and second edges of a magnetic pole essentially towards the center of a magnetic pole (see Applicants' claim 1).

Applicants' independent claims 1, 11 and 15, along with all remaining dependent claims, are therefore allowable.

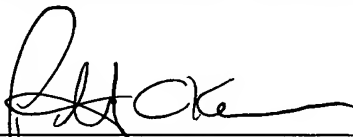
All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the application is in condition for allowance and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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